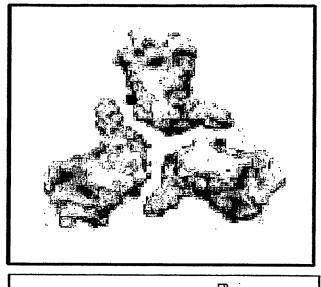


Figure 1

	1264	1274	1284	1294
-	_			
gp120 422-432	CAAAT	CAAATTATAAACATGTGGCAGAAAGTAGGAAAA	IGGCAGAAAG	HAGGAAAA
	=		= = -	
rv 85283	CAAAT	CAAATTAAAAACTTTTAAAGAAAGTAGGAAAA	ITAAAGAAAG	TAGGAAAA

microbes/ Protection against infection Ab responses to HERV self-antigens Robust Ab responses to present-day **Autoimmune host** The state of the s Evolutionary integration of Viral sequences into host genome is a microbial immune subversion strategy Tolerance to HERV self-antigens Tolerance to present day microbes/ Increased infection Non-autoimmune host

Figure?



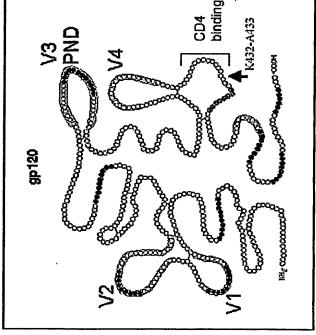


Figure 4

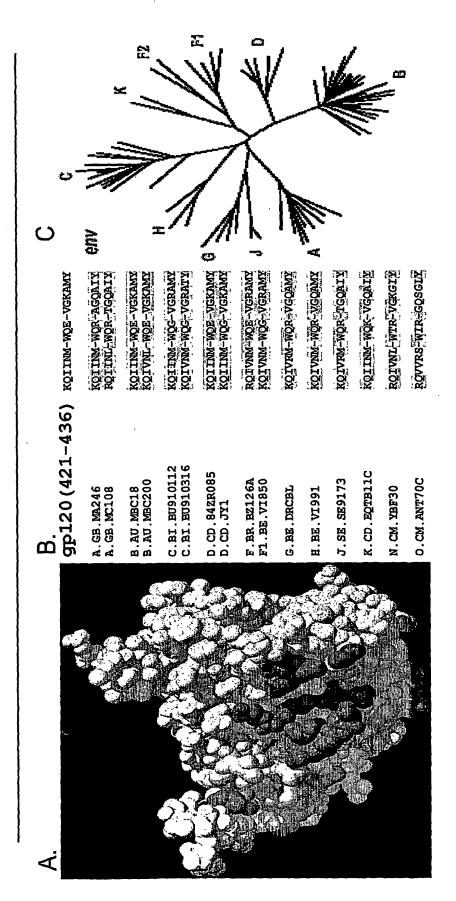
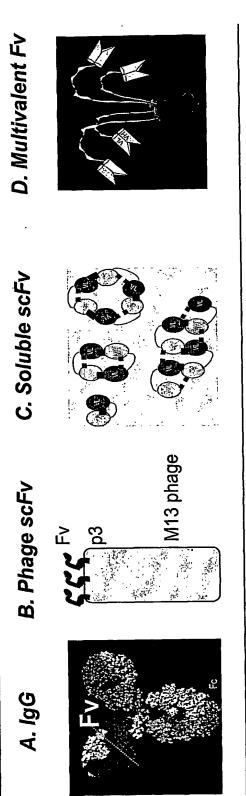


Figure 5

Fv variants with improved gp120 binding properties

- -- Affinity, avidity, cross-clade HIV neutralization
- -- Neutralizing potency consistent with immunotherapy use



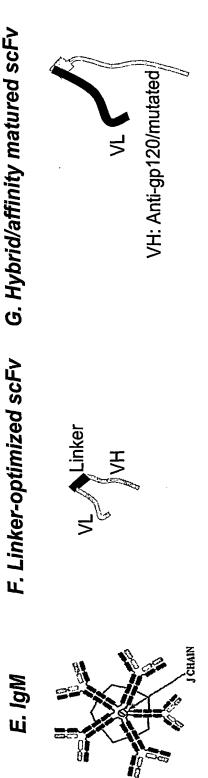
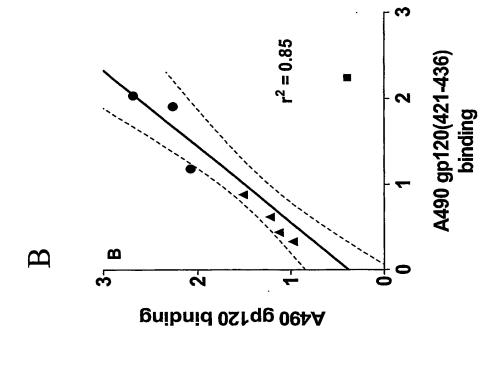
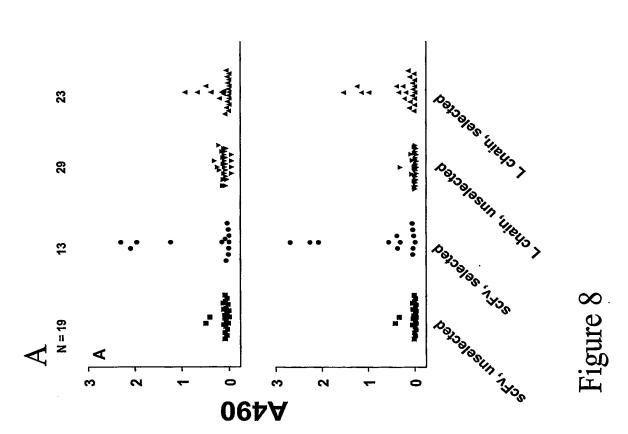


Figure 6

Antibody expression, mg/L	~2 ~3	E I
Diversity %	54 100	PHENSeq amber and
Size	8.8×10 <sup>5</sup> 1.4×10 <sup>7</sup>	
Full-length Inserts, %	72	Place RISS
Source	PBL, lupus PBL,	sndn 1
Vector	pCT5his6 pHEN2	DHENS EA
Library	L chain Fv	99 KD - 72 KD

Figure





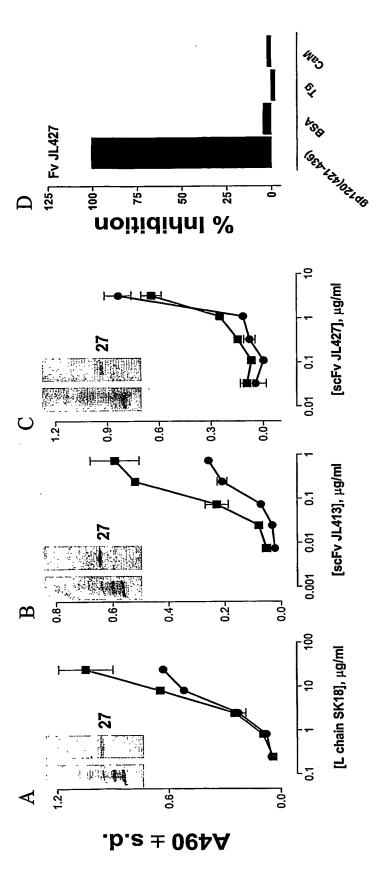


Figure 9

domain	
Ħ	
JL413	
SCFV	

	•			
THR	PRO	SER	PRO	THR
VAL	LYS	PRO	GLN	GLY
	GLN	VAL	LEU	
ASP	GLN GLN	GLY	SER LEU	GLY GLY
GLY	TYR	SER	SER	PHE
VAL		GLN	ILE	THR
SER	ALA	Dan	THR	<u> Xire</u>
ALA	CEC	SER	LEU THR ILE	TAL
SER	TRP	SER	THR	100
VAL	ASN	ALA	PHE '	YLA J
SER VAL SER ALA SER VAL GLY ASP ARG	JIX.	31.7	ASP 1	NTE
SER (	7911	IYR (	IHR .	) NTE
PRO	ХTE	LLE	SER GLY THR ASP PHE	TYR CYS GIN GIN ALA LEGEVAL GLY THR
SER PRO	NITE	רפת	SER (	· EYR (
GLN	SER (	CEU 1	ETX (	TYR ?
開	ALA (	ASN 1	SER (	THR 1
VAL MET THR	ARG ALA SER GENEGLY ILE GLY ASN TRP LEU ALA TRP	HIS ASN LEU LEU ILE TYR GLY ALA SER SER LEU GEN SER GLY VAL	GLY SER GLY	SER ALA THR
AL N	CYS $\hat{i}$	ALA 1	SER (	SER 1
VAL 1	THR (	LYS 1	PHE 8	ASP S
ASP V	21 ILE 1	41 GLY I	61 ARG 1	81 GLU ?
7 14	(4 [	4. 0	0 14	<b>w</b> 0

## scrv JL413 VH domain

101 LYS VAL GLU ILE LYS ARG

	LEU	PRO	ASN	LEU	ĞĽΥ	
	SER	GLN	TYR	SER	GLIN	
	LEU	ARG	TYR	PHE	GLY	
	THR	ILE	THR		TRP	
	GLU	SER TRP ILE	SER	LYS ASN GLN	CYS	
	SER	SER	GLY	LYS	TYR	
	VAL ASN LEU ARG GLU SER GLY PRO GLY LEU VAL LYS PRO SER GLU THR	SER SER TYR TRP	TRP ILE GLY PHE THR TYR TYR SER GLY SER THR TYR TYR ASN	SER	THR ALA MET TYR GYS TYR CYS TRP	
	LYS	TYR	TYR		TYR	
	VAL	TYR	TYR	VAL ASP THR	MET	
	LEU	SER	THR	VAL	ALA	
	GLY	SER	PHE	SER	THR	
	PRO	ILE	GLY	THR ILE	THR ALA ALA ASP	
	GLY	PHE	ILE		ALA	
	SER	GLY	TRP	VAL	ALA	SER
	GĽŪ	GLY	GLU	ARG	THR	SER
	ARG	VAL SER	LYS GLY LEU GLU	SER	VAL	101 THR LEU VAL THR VAL SER SER
	LEU		GLY	LYS	SER	THR
	ASN	THR	LYS	61 PRO SER LEU	SER	VAL
		CYS	GLY	SER	LEU	LEU
2	1 GLN	21 THR	41 PRO	61 PRO	81 LYS	101 THR
JUSTS VA GOMBIN						

# Figure 10 A

## scrv JL427 VL domain

60 ILE	PHE	PRO	ARG	VAL	
THR	HIS	VAL	LEU	TRP	
	GLN	GLY	GLY	ĠĹĸ	
ARG	IYR GLN	LEU	SER	SER	
GEN ARG VAL	TRP	THR ALA PRO LYS LEU LEU ILE TYR ARG ASNAASP GIN ARG PRO LEU GLY	ILE	CYS GIM SER TYR ASP ASN SER IEU SER GLY TRP	
GLY	TYR	ARG	ALA	SER	
PRO	VAL	GLN	LEU	ASN	•
ALA	TYR	ASP	SER	ASP	
GLY	ASN	ASN	SER ALA SER LEU ALA	TYR	
SER	กลา	ARG	SER	SER	GLY
VAL	GLY	TYR	THR	GLN	
SER	PHE	ILE	GLY	CYS	VAL
PRO PRO SER VAL SER GLY ALA PRO GLY	CDR1 SER GLY SER SER SER ASN PHE GLY LEUGASN TYR VAL TYR	LEU	SER GLY THR	TYR	TYR
PRO	SER	LEU	LYS	TYR	LEU
GLN	SER	LYS	PHE SER GLY SER LYS	ASP	GLN
THR	SER	PRO	GLY	GLU ALA	TYR
Teo	ĞLY	ALA	SER	GLU	GLY
VAL	SER	THR	ЭНЗ	ASP	GLY
SER	CYS	GLY	ARG	OTO	121 PHE GLY GLY CLY TYR GLN LEU TYR VAL LEU
1 GLN	<b>21</b> SER	41 PRO	81 ALA	101 SER	121 PHE

60 LEU	ALA
ARG	GLN
LEU	ARG
SER	VAL
ARG SER	TRP
GLY	HIS
PRO	MET
GLN	GLY
VAL	TYR
LEU	SER
GLY GLY GLY LEU VAL GLN	PHE SER SER TYR GLY MET HIS TRP VAL ARG GLN
GLY	PHE
GLY	THR
SER	PHE
GLN	SER GLY PHE
GLN	SER
GEN LEU GEN GEN SER	ALA
GIEN	ALA ALA
VAL	CYS
GEN	41 SER
GEN VAL GI	
>	

α	œ	ig;	
II	TYR	胃	
ASN	TEU	GEY	
THR	THR	ARG GLY LEU	SER
HIS	ASN	ALA	SER
SER	LYS	CYS ALA	VAL
GLY	SER	TYR	THR
SER	ASN	TYR	VAL
ARG	ASP	VAL	THR THR VAL THR
GEX	ARG	ALA	THR
TIE	SER	THR	GLY
TYR	ILE	ASP	GLN
SER	THR	GLU	GLY
GLY LEU GLU TRP VAL SER TYR ILE GLY ARG SER GLY SER HIS THR ASN TYR	GLY ARG PHE THR ILE SER ARG ASP ASN SER LYS ASN THR LEU	LEU ARG ALA GLU ASP THR ALA VAL	TRP
TRP	ARG	ARG	TI
GLU	GLY	LEU	ASP
LEU	LYS	ASN SER	MET
GĽX	VAL LYS	ASN	GLY
LYS	SER	ILE	TYR
GLY	ASP	GLN	121 PRO ASN TXR GIX MET ASP ILE TRP GLY GIN GLY
61 PRO	81 ALA	101 LEU	121 PRO

Figure 10 E

Figure 10 C

	THR	PRO	ER	80 PRO	GLN	
	VAL T	GEN P	% %	GLN F	GLY G	
	ARG V	GEN G	AL B	o nai	рне с	
	SP A	ILN G	ır v	SER I	THR E	
	LY A	TYR GLN	ER	SER S	ARG 1	
	ÆL G	IRP 1	ZI.	S HII	PRO 1	
	SER V	NSN	) DE	THR ]	III	
	ALA S	LEU 7	SER 1	ניבת נ	SER	
	SER 7	DYR 1		THR LEU	IYR	
	3 VL domain GLN MET THR GLN SER PRO SER SER LEU SER ALA SER VAL GLY ASP	CYS ARGALA SER GIN SER ILE SER SER TEU ASN TRP	ILE TYR ALA SER SER LEU GLN SER GLY VAL PRO SER	PHE	PHE CYS GEN GIN SER TYR SER ILE PRO ARG	
	SER ]	SER	ALIA	ASP	GLN	
	SER :	TLE	TYR	THR ASP PHE	GEN	
	PRO	SER	ILE	GLY	CYS	
	SER	GLN	TEO	SER GLY	PHE	S.A.1
	GLN	SER	LEU	GLY	TYR	F.
	H HH	ALA	ALA PRO LYS LEU	GLY SER GLY	ALA THR TYR	ה דוו
,	doma MET	ARG	PRO	GLY	ALA	VAT.
	GEN G	CYS	ALA	SER		Z > 1
1	SK18	THR	LYS	ЭНЗ	ASP PHE	101 CIV THE IVS VAL GIJI ILE IVS
	l 1 ASP	21 VAL	41 GLY	61 ARG	81 GLU	101
,	Light chain SK18 VL domain 1 ASP ILE GLN MET TH					
	110					

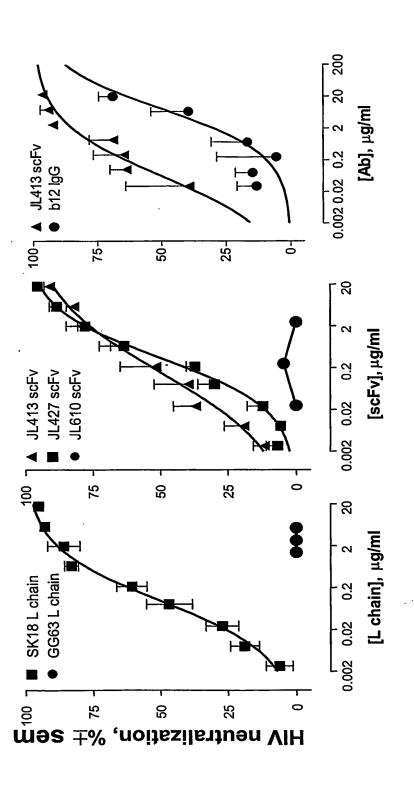


Figure 11

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